

ENVIRONMENTAL ISSUES AFFECTING PHILIP MORRIS

I. NATIONAL TRENDS

The nation, the Congress and the President are showing a renewed interest in the environment. We have not seen the proposal of so many new environmental laws since the early 1970s.

Even without these new laws, industry would still be facing a renewed enforcement of environmental law as the current laws, many of which are almost twenty years old, come before Congress for re-authorization or amending. In many cases, the full effect of these laws was not brought to bear on industry that existed when the laws were passed. Existing industry had to reduce gross pollution, but the costs were often moderate. New industry was (and is) required to meet higher standards which are more costly to attain. For example, when old boilers wear out or production equipment is replaced with faster models, new permits must be obtained, following new procedures which dictate the new control standards. More time must be allowed to get permits and more capital spent on pollution control devices.

Testing procedures have also advanced considerably in the past twenty years. Pollution used to be measured in parts per million; now we can measure most chemicals can be measured to parts per billion or even per trillion. At this level, pollutants can be identified in many environments, but are not necessarily at levels which cause problems. The EPA and State regulatory agencies are overloaded with data for which they don't have the resources to interpret. The old laws required the EPA and the states to set numerical standards for individual chemical pollutants. The new tests, public concern, and bureaucratic caution combine each year to make longer lists of regulated materials and lower allowed emission levels. We are being required to spend more time and resources tracking or testing for these chemicals in order to submit reports required by environmental agencies. We don't yet know if we will be required to spend more capital for controls.

Solid waste issues are getting the most attention since the anti-litter laws of the 60s. Congress is showing considerable interest in laws to control refuse and consumer packaging. AIDS has raised nationwide fears about infectious wastes and ocean dumping. Concern about the ozone layer, and the greenhouse effect continue to be debated. Old landfills are filling up or being closed for environmental reasons. New landfills are not being opened because local residents can usually block them. Disposal costs are rising much faster than inflation and other business costs.

II. AIR POLLUTION ISSUES

In the early 1970s air pollution was simple to understand and control. Air pollution control agencies were in their infancy, struggling to figure out how to regulate emissions into the air. They began with the obvious types of pollution, dust and dirt, the products of combustion (like sulfur dioxide, carbon monoxide and nitrogen oxide) and solvent type vapors (from gasoline storage). Simple control devices could be installed to filter dust from a gas stream. Proper combustion techniques combined with a fuel low in sulfur and ash content were acceptable controls for many of the combustion sources. White tanks with evaporation barriers prevented vapor loss and satisfied the regulations.

Over the years, the regulators have been acquiring data on types of emissions, amounts of emissions and the quality of the air we breathe in general. The measurement techniques have become more affordable, more reliable, more sensitive (to detecting low concentrations), and therefore more widely used. Not only have pollution measurement techniques improved but so has pollution control technology. This has provided the agencies with data necessary to pass regulations to protect air quality and limit emissions from many sources not originally controlled. The agencies have reduced the amount of emissions they will allow and have expanded the number of pollutants regulated.

A. Ozone Nonattainment

The geographic area to which stringent Volatile Organic Compound (VOC) control regulations apply is expanding. At the same time the regulatory agencies are reviewing their rules to find ways to tighten them up and get more reductions in VOC emissions. The change to the definition of what constitutes a VOC plays a role in this program. Substances not regulated previously are now regulated. Any organic compound emitted as a gas (with a few exceptions) is now suspected of contributing to the formation of photochemical pollution. The expansion of the areas and number of pollutants of concern coupled with the tightening of the regulations will bring our facilities under review for possible emission reductions through the use of add-on technology. A way to head this off is to modify the processes using volatiles (i.e., flavors) to reduce the amount of ethanol used.

Another concern is the trend to limit or eliminate the growth in emissions in these nonattainment areas. New sources of VOC emissions will have to "OFFSET" their emissions by reducing VOC emissions somewhere else in the area. If this is not possible at a facility that we own, it must be accomplished at another facility in

the area. This means we either buy VOC controls from someone else (and perhaps incur some responsibility for seeing that they are operated properly), or buy another VOC emitting business and close it! The details of this type of program have not been worked out yet by the states.

B. Federal Toxic Air Emissions Rules

There is renewed emphasis and accelerated progress in controlling major toxic pollutants. Ten source categories will be regulated within the next two years: 25% of source categories within four years, 50% within seven years, and all within ten years. Maximum Available Control Technology will be required to cut pollution sharply. Early, voluntary reductions will be encouraged and credit for those reductions will be provided once standards are set.

C. State Toxic Air Emissions Rules

North Carolina has been working on a rule to control toxic pollutant emissions for several years. The rule is going through final review before official approval is requested from the state's Division of Environmental Management. The rule proposes to regulate the impact of approximately 120 substances.

Kentucky is reviewing the toxic pollutant rule it has on the books. They are considering adding pollutants to that portion of the rule dealing with existing sources. They are also considering making changes to the standards. Nothing formal has been proposed yet.

Virginia has just started the official regulation review process of the rule they already have on the books. It is too early to know what changes will occur.

D. Acid Rain

Amendments to the Clean Air Act Propose cutting sulfur dioxide emissions by 10 million tons by the year 2000 and nitrogen oxide emissions by 2 million tons.

These reductions are to be achieved by the utility industry; industrial boilers are not mentioned at this time. However, other moves are afoot to reduce sulfur dioxide emissions from industrial boilers. (See discussion of NSPS for industrial boilers.)

E. Greenhouse Effect

Carbon dioxide (CO₂) is the primary pollutant of concern contributing to the Greenhouse Effect (warming of the earth's atmosphere). At this time there is no specific effort by the regulators to limit or reduce CO₂ emissions. However, they will get to it eventually. We have some significant CO₂ emission sources and are planning more. Each new point of CO₂ emissions should employ the latest technology to reclaim and reuse the CO₂ rather than venting it to the atmosphere. Regardless of how cheap it is to replenish the CO₂, we should reclaim as much as possible, thereby minimizing our impact on the Greenhouse Effect.

F. Proposed Standards For New Small Boilers

The proposed standard forces newly installed small boilers toward very low sulfur oil or natural gas. Coal would have to be low in sulfur and the exhaust gases would have to be scrubbed to meet the proposed limits. Note that Kentucky's limits for coal burning are already as stringent as those proposed. In Louisville we burn a low sulfur #6 oil (S = .8%) to comply with the State rule.

The proposed standard is effective as of the date of proposal, which was June 9, 1989. It may be several years before the rule is promulgated in final form, but the states will probably start using its provisions as their limits in permits issued from now on. We should plan for any new fuel-burning equipment to be oil/natural gas-fired and plan to purchase the low sulfur oil.

G. Lead Time For Permits

Air pollution regulations in Kentucky, North Carolina and Virginia require us to have a permit before we "commence construction." Adequate lead time must be allowed to develop and submit an application and give the Air Board time to review and issue the permit. Six months is the absolute minimum time the Virginia Air Board is taking to issue permits. North Carolina issues permits in ninety days. Kentucky is not issuing permits in less than three to six months.

If we begin construction before a state air agency issues a permit, we are open to enforcement actions and fines of up to \$25,000 per day of violation.

H. Current Air Projects

In the past twelve months, we have tested representative stacks at the BL Plant and Richmond Leaf Processing. By the end of 1989, representative stacks will have been tested at MC Primary, and Annex in Louisville. This testing will alert us to possible violations of the Toxic Rule of the Virginia Department of Air Pollution Control and Jefferson County Air Board. It will also provide us with information to submit complete applications for permits at our facilities in all locations.

Once permits are issued, their terms must be strictly followed. With a permit, we promise or guarantee certain things in order to operate legally and we must remain faithful to these commitments. Examples of permit commitments include:

1. Fuel Type and Quality - We must burn #4 oil with a sulfur content of 1.5%. Switching to a cleaner fuel (i.e. natural gas) can be handled easily, but a change to #6 oil with a 2% sulfur content will not be allowed.
2. Hours of Operation - We should specify continuous operation where appropriate; if something less is in the application, it takes a permit change to increase.
3. Raw Material Throughput - Same as 2.
4. Administrative Reporting - Quarterly reports may be required in a permit and must be on time.

I. Conclusions

Stricter emission limits on more and more pollutants lie ahead. Costs for operation of existing facilities and the construction of new facilities will increase. This will be due to tighter controls on volatile organic emissions, increased fuel costs to burn cleaner fuel, and the addition of pollution abatement devices where none have been required before.

III. WATER POLLUTION ISSUES

The major water pollution issues of the 1990s will be Federal funding, Combined Sewer Overflows (CSOs), nutrient discharges and toxic discharges. CSOs are combined sanitary and storm sewers which overflow directly to rivers during heavy rain. Most older cities have CSO problems. With the general decline in Federal grant money, state and local governments are having a difficult time financing new wastewater projects. In most localities, sewer bills are already twice as much as water bills. This trend will continue or even increase. Increased sewer costs will increase operating costs in Richmond, Louisville and Cabarrus. Due to its smaller size, the Concord treatment plant has the greatest potential for delay of a major PM expansion due to a lack of wastewater treatment capacity. In the remote event this should occur, we could be required to help Concord expand their wastewater facilities or wait until they do it on their own.

As progress is made toward removing traditional, conventional pollutants, attention is shifting to nutrient and toxicity issues. Last year Virginia limited the discharge of phosphorus to 2 mg/L. Because Park 500 normally discharges 12-14 mg/L we must add new treatment processes to reduce our phosphorus discharge. Construction must be completed within three years. Some environmental groups want a similar limit on the discharge of nitrogen. The Governor has signed an agreement with Maryland to reduce nutrients by 60% but the State will not say if they are considering a nitrogen limit.

Improved laboratory instruments have caused a re-evaluation of the concept of toxicity. When "toxic" chemicals are present at a few parts per billion, or trillion, is the discharge really toxic? What are the combined effects of several toxic chemicals present in trace amounts? To address these questions, the comprehensive chemical testing and tests which expose fish, and other living creatures, to undiluted discharges are required.

Park 500 must perform these tests repeatedly to prove our discharge is non-toxic. If there is a hint of toxicity we must design a program to find the cause and abate it. Previous tests conducted at Park 500 indicate that we do not have a toxicity problem; however, new requirements for more frequent tests present more opportunity for problems to arise.

A. Current Water Projects

The City of Richmond has begun issuing wastewater discharge permits to PM plants and has requested some analysis of our discharges. Engineering is studying the water and wastewater needs of various projects which might be expanded or introduced at Park 500. To satisfy the City and assist in planning for Park 500, we have started a study to measure the flow and analyze the wastewater from our Richmond plants. We hope to complete this project by the end of the year.

For many months, EEP has been advising Park 500 and Engineering on the State's progress toward imposing the phosphorus limit. Park 500 contracted an engineering firm to conduct bench tests to evaluate various designs for phosphorus removal. On July 31 we received a draft copy of the State's proposed new NPDES permit for Park 500 which establishes conditions and a timetable for meeting the phosphorus limit. The draft is currently under review. A final permit is likely this fall which will require construction to start by the spring of 1990.

In most states, underground tank regulations are administered by water pollution agencies because of their previous authority over groundwater. During the last two years, PM USA has conducted a vigorous program to remove and replace all regulated underground storage tanks. Tanks have been replaced at Park 500, MC, Leaf Processing, and 20th Street. Stockton Street will replace its fuel oil tanks next year and it will be our most expensive and challenging tank job. This site is known to have soil and groundwater contamination due to two pipe leaks. The State and City are already involved and they will insist the clean-up is complete. We have an estimate of \$600,000, which could go higher depending on the extent of contamination.

B. Conclusions

Although current water pollution issues are not undergoing rapid changes, like air and solid waste issues, water issues will have a direct and immediate effect on our costs. The upgrade of Park 500's wastewater treatment must take place. The only question is for how much flow do we want to build. Richmond's efforts to reduce combined sewer overflows will certainly cause large increases to our water bills in the near future.

IV. SOLID AND HAZARDOUS WASTE DISPOSAL ISSUES

Americans produce an average of 1300 pounds of solid waste each year and the country is running out of places to dispose of it. Two social forces - the throwaway mentality on the part of manufacturers and consumers, and the "not-in-my-backyard" (NIMBY) syndrome - have combined to create a serious and growing solid waste problem. More than 40% of the solid waste stream consists of the paper and paper products we discard from our homes, offices and factories. As this deluge of garbage is growing steadily, we must find ways to manage it safely and effectively.

A. Proposed Federal Laws

USEPA's agenda for action has a stated goal of managing 25% of the municipal solid waste through source reduction and recycling by 1992. Several bills have been proposed in Congress to address the solid and hazardous waste management problems currently facing our nation. Some of these bills are as follows:

1. "Waste Minimization & Control Act of 1988" (S.2773, 100th Congress, 2d Session), to amend the Solid Waste Disposal Act and extend authorization through 1992. This Act proposes among other things, the following waste reduction and recycling goals:
 - a) Establish a national performance efficiency standard for industrial waste generators in SIC's 20-39, requiring within ten years that total hazardous residuals including emissions, effluents, spills and managed wastes will not exceed five % of production throughput.
 - b) Establish a national goal of 25 % municipal solid waste recycling within four years, 50 % within ten years where recycling constitutes least cost disposal, and 10 % municipal solid waste reduction within four years.
 - c) Impose a \$7.00 per ton fee on virgin materials used for packaging.
2. "Waste Reduction Technical Assistance & Incentive Act of 1987" (100th Congress, 1st Session). The main purpose of this Act is to establish an Office of Waste Reduction in the USEPA in order to provide a central source of direction and information on waste reduction.

3. "Waste Reduction Act of 1988" (H.R. 2800).
Through this Act, Congress declares a national policy that:
- a) The generation of waste should be reduced or eliminated at the source, whenever feasible.
 - b) Waste that is generated should be recycled, whenever feasible.
 - c) Waste that cannot be reduced or recycled should be treated in an environmentally safe manner.
 - d) Disposal should be employed only as a last resort and should be conducted in an environmentally safe manner.

The latest is a proposal by Rep. Thomas Luken (D-Ohio) to include, as part of a House Bill to re-authorize Resource Conservation and Recovery Act (RCRA), a national mandate of 50 % recycling and a fee for using virgin materials in certain products. The draft bill would mandate achievement of a 25 % recycling rate for municipalities within four years of passage and 50 % within eight years.

The upcoming re-authorization of RCRA is expected to include or address these areas:

- Waste minimization,
- Landfill ban,
- Organic toxicity test.

B. Proposed State Laws

The individual states are also passing waste minimization laws. California passed one in September. Virginia passed a law in 1988 which requires local government to recycle 25% of their solid wastes by 1995. This law does not apply directly to industry but we will probably be affected.

Consumer packaging is another hot issue. There is interest in laws to ban certain types of plastics and other packaging materials and require only biodegradable materials. This would probably require a federal law but the states can encourage industry by requiring a deposit on all plastics like some states have done for drink bottles and cans.

C. Restrictions on Hazardous Waste Disposal

In April 1988, the EPA released a final proposed rule that established a schedule for land disposal restrictions in accordance with RCRA's Hazardous & Solid Waste Amendments (HSWA) of 1984. These rules set up a tiered system by which various types of hazardous wastes are banned from landfills without prior treatment. By the early 1990s, all hazardous wastes must be treated or meet strict standards before it can be put into a hazardous waste landfill.

The immediate consequence of these rules has been increased costs and increased difficulty in disposing of many types of wastes. Incineration facilities are no longer accepting certain wastes because they are afraid they will not be able to dispose of the ash. States like South Carolina and Alabama which have hazardous waste landfills are prohibiting them from accepting material from states which do not have such landfills.

D. Current Solid Waste Projects

A comprehensive solid and hazardous waste survey of all facilities is currently being conducted. All Virginia facilities have been surveyed by Employee and Environmental Protection. This information will be maintained current to promote centralized planning for waste minimization and recycling.

E. Conclusions

The trend is clear that the type of wastes regulated as hazardous will be increasing. Disposal of both hazardous and non-hazardous wastes will become more intense and will be more expensive. This certainly will impact PM operations. The annual waste disposal cost for PM-Richmond facilities is about \$2.2M, of which only 10% is for hazardous waste.

Waste minimization is one of the few areas where national environmental goals and industry's economic interests clearly coincide. It provides opportunities to deal more efficiently and effectively with wastes that are hazardous to human health and the environment. These opportunities are unique in that they provide immediate financial rewards, increased waste management flexibility to generators, and reduced pressures on the nation's existing treatment and land disposal capacity.

Although some areas or departments are recycling some of the waste streams, there is still a lot that can be done to reduce our waste. We must adopt a renewed solid waste management ethic that minimizes the amount of waste created by our processes and materials we purchase. That ethic must also maximize the amount of waste materials that are reused and recycled so that we minimize our reliance on landfills and incinerators.

V. COMMUNITY RIGHT-TO-KNOW ISSUES

On the average, there are five industrial chemical accidents in the U.S. each day. Newspaper articles about chemical incidents and industrial emissions are becoming all too common. They have allowed Americans, for the first time, to get a full accounting of what chemicals their industrial neighbors are releasing to the air, water and land around them. The magnitude and number of environmental releases has surprised even environmental experts and has prompted Congress to take action. A 1985 study reported, "The spills and emissions prior to 1985 totaled 420 million pounds of chemicals, 468 instances of death or injury were recorded. The evacuation of at least 217,457 people were involved."

Bhopal, India and Institute, West Virginia altered the way the American public and its lawmakers look at industry. Within the last four years, new rules from OSHA and EPA have profoundly altered the way in which industry is held accountable to the public. OSHA rules establish the Material Safety Data Sheets (MSDS) system and require industry to make MSDS's available to their employees. OSHA also requires a Hazard Communication Program to inform all employees of the dangers they might be exposed to and special training for emergency response personnel, including management. EPA rules extend these employee right-to-know concepts to the community and the general public.

In response to the public's concerns about the risks of chemical releases in their communities, Congress adopted the Emergency Planning and Community Right-to-Know Act of 1986. Known also as SARA or the Superfund Amendments and Reauthorization Act of 1986, its purpose is to "encourage and support emergency planning at the state and local levels" and to "provide citizens and local governments with information about potential chemical hazards in their communities." SARA Title III requires industry to provide information about chemicals stored on-site to: the State Emergency Response Commission, the Local Emergency Planning Committee and the Local Fire Department. In addition, chemicals being released from a facility must be reported to the EPA and to the State Emergency Response Commission.

Information required to be reported includes:

- Chemical Identities
- Physical and Health Hazards
- Maximum Daily and Average Daily Quantities Stored
- Container Type
- Location Where Stored
- Pounds and Identity of Chemicals going into the Air, Water, and Ground

A. Current Right-To-Know Projects

This new SARA Title III legislation impacts our daily operations by imposing a number of new reporting requirements, by magnifying our visibility in the community, by necessitating improved coordination between diverse groups within Philip Morris, and by moderately limiting our protection of trade secrets as they relate to flavoring ingredients.

One impact of this regulation is that of staffing resources. The EPA estimated that to prepare just the toxic release report alone, that the average facility will need about 200 hours each to pull the data together, estimate releases, and complete the reporting forms. PM is much larger than the average facility. Our strategies this year must take into account this added regulatory burden. Where possible, EEP is automating the data collection and reporting processes. Given the volumes of information required to be stored, sorted and assessed, Philip Morris strategies must include pursuing the completion of its PM USA Health and Safety System. This system is currently 80% complete but final completion must remain a priority thru 1990. It should be noted, that by 1990, nearly all chemicals used or stored at Philip Morris will have to be submitted to the State Emergency Planning Commission, Local Emergency Planning Committee and the local fire department.

Because SARA Title III provides for public access to MSDSs, inventories, and emission releases/mass balance information, media and public scrutiny will certainly increase. In addition, the likelihood of citizen suits and increased enforcement actions are to be anticipated. Philip Morris must prepare itself for this public scrutiny by surveying our materials for chemical components which may invite scrutiny, by preparing to deal with inquiries from citizens as well as local, state and Federal authorities, and by improving our Emergency Response Teams.

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Obtaining correct information for SARA reporting has demanded a high degree of coordination and informational exchange between various groups working within Philip Morris. This has included:

- Purchasing - for reliable figures on usage and updated MSDSs.
- Manufacturing Services - for flavoring and trade secret issues.
- Engineering - for environmental release information.
- R&D - for flavoring and trade secret issues.
- Flavor Center - for labeling and MSDS issues.
- IS - for design and development of the mainframe system.

SARA Title III requires facilities to submit either the Tier 1 or Tier 2 reports to the local Emergency Planning Committee and the local fire department. These reports detail the type and amount of "hazardous chemicals" used and/or stored at PM locations. Chemical identity information that a firm does not want to disclose, because disclosure would cause substantial competitive harm, may be claimed a trade secret under certain conditions.

The flavoring compounds are a concern to Philip Morris. According to SARA, trade secret protection can only be sought for the chemical identity or name, and then only if certain substantiation requirements can be met in advance. In its rulemaking, the EPA has weighed the manufacturer's rights to protect legitimate trade secrets against the public's right to know, and has sided with the public's interests. If the EPA determines that a trade secret claim is frivolous, it may assess a civil penalty of \$25,000 per claim. The EPA has defined a frivolous claim as "one without factual or legal basis or one where the facts and circumstances relied upon to substantiate a trade secret are without merit."

PM has met several times over the last year with attorneys from Arnold & Porter, R&D, Manufacturing Services and Purchasing to develop a strategy for achieving full compliance while also protecting our trade secrets. These meetings resulted in an agreement that the following steps be pursued:

- Purchased "single chemicals" will be reported by chemical name (14 flavor chemicals in 1989-1990 reporting). No trade secret protection will be sought.

- Purchased "mixtures" will be reported by DM code and description (22 purchased flavor mixtures in 1989-1990).
- Philip Morris finished flavors will be reported by DM Code and description (103 PM finished flavor mixtures in 1989-1990). Separate MSDSs will be developed for each of these PM finished flavors.

B. Conclusions

Employee and community right-to-know rules have not yet been fully promulgated by government or implemented by industry. These rules have added to both costs and workload.